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THE JOURNAL OF PHILOSOPHY

VOL. XXIII. NO. 25: DECEMBER 9, 1926

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PUBLISHED FORTNIGHTLY
BY THE
JOURNAL OF PHILOSOPHY, INC.

THE JOURNAL OF PHILOSOPHY

All communications to the Editors should be addressed to Professor FREDERICK J. E. WOODBRIDGE, or Professor WENDELL T. BUSH, or Professor HERBERT W. SCHNEIDER, Columbia University, New York.

Subscriptions and advertisements should be sent to THE JOURNAL OF PHILOSOPHY, 515 West 116th Street, New York. The annual subscription price (twenty-six numbers) is $4.00 and the charge for single numbers is 20 cents. Advertising rates will be forwarded on application.

THE JOURNAL OF PHILOSOPHY is owned by The Journal of Philosophy, Inc., 515 West 116th Street, New York, and published at Lancaster, Pa.: President, Wendell T. Bush; Vice-President, Herbert W. Schneider; Treasurer, Frederick J. E. Woodbridge; Secretary, Iris W. Wilder.

Entered as second class matter, March 18, 1921, at the Post Office at Lancaster, Pa., under Act of Congress of March 3, 1879.

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BY

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On Sale at Bookshops or direct from the Publishers

Columbia University Press

2960 Broadway New York City

VOL. XXIII., No. 25. DECEMBER 9, 1926

THE JOURNAL OF PHILOSOPHY

THE NATURE OF THE VITALISTIC DILEMMA

IN this brief paper I do not propose to consider the problem of vitalism in any detail, but rather to indicate how there has come to be such a problem, what its nature and implications are, and what kind of a solution (if any) is possible. At present there are not wanting signs of a clearer recognition of the essentially philosophical nature of the problem; and we must all welcome the reaction, now evident even in purely biological circles, against the cruder forms of mechanistic interpretation. Nevertheless, the methodology and procedure of biology, as an objective science, remain essentially physico-chemical; and in many departments of physiology its technique approximates more and more closely to that of pure physics and chemistry. Investigators now look to biophysics and biochemistry for a solution of the fundamental biological problems; and no one acquainted with the achievement and promise of these sciences will expect this tendency soon to disappear. Nor is this difficult to understand. The applications of physico-chemical theory and method have given us a steadily increasing control over the processes of the living organism. By every test that can be devised these processes show themselves to be physical (physico-chemical) in the sense that their material substratum always conforms to physical laws and responds definitely to physical influences. This evidence strengthens us in the conviction that the ascertained physical uniformities or "laws" of energetics, of electricity and radiation, of chemical combination, hold in the same sense within the organism as in the external world.

Apart from this empirical justification of the point of view usually called "mechanistic," there are sound reasons of a more general kind for accepting it as scientifically valid. Thus it seems clear that the continued existence and progressive evolution of living organisms presuppose an uninterrupted conformity to physical law. Any progressive evolution implies stability of the conditions and uniformity of the processes that underlie the development and make it possible. The regularity and persistence of the organic world have as their necessary basis or condition the regularity of the inorganic world, which furnishes both the material components of the organism and the external conditions of its life. In its physical aspect as a system in external nature the organism represents a combination or synthe-

sis of inorganic materials, energies, and processes. The exactitude of the organic processes, which is clearly an indispensable condition of the stability of the organism in its environment, is evidently a derivative of the fundamental physical exactitude. This exactitude is to be referred in the last analysis to the properties of space-time and the repetitive and atomistic character of the ultimate physical entities (electrical units, quanta). An underlying or "metaphysical" foundation of these characters is implied, but need not concern us here.

We may begin with a statement which from the above defined point of view will, perhaps, seem axiomatic. Since, physically speaking, the organism is a system in an environment, its composition and activities must be compatible with its persistence or survival in that environment. In other words, it must preserve an equilibrium with external nature. All durability in nature implies equilibrium. What, then, are the fundamental requirements of the organic equilibrium?

We have in the living organic individual a highly complex, physically and chemically active collocation or accretion of materials and energies. These are collected or centralized from an environment and transformed physically and chemically in a manner which is constant and specific for each kind of organism. The product of this synthesis, the individual animal or plant, continues to "live" and to preserve constant properties for some time. On analysis we discover that the system owes its persistence to the continual exercise of varied and complex activities, chemical and physical; these are combined and regulated in such a manner that normally they compensate all deviations of the system from a stable condition. The equilibrium is thus of a dynamic or active kind, like that of a flame or whirlpool. Fundamental to the existence of the system is its specific chemical activity or metabolism; this builds up the organism from the environmental derivatives and maintains it in its finished and active state.

It is characteristic of the living organism that its chief distinguishing properties and activities are intimately correlated with its special character as a metabolizing system. Since, typically, its growth, maintenance, and activity depend on energy derived from oxidation, continued life demands a constant supply of oxidizable material. This is usually furnished from without, as food, but in green plants it is manufactured within the organism by photosynthesis. A supply of structure-forming or other materials (water, salts) is also required. Hence, as a necessary condition for securing those supplies, the organism is equipped with special apparatus and activities by which assimilable materials and energies are captured

and incorporated. The photosynthetic system of the plants and the special motor activities of animals (directed by the food-securing instincts) represent the chief means to this end. The supply thus secured constitutes the primary condition for the preservation of the organic equilibrium; what is gained in excess of that needed for individual maintenance may contribute to growth or to the formation of new individuals (reproduction).

The word "end" leads us to the consideration of "finalism." That many organic activities are directed to an end is true; in a certain sense the term "finalism" refers simply to a fact of observation. It is, however, none the less desirable to define clearly the objective significance of the term. Its main reference is to the possession or exhibition of special properties and activities, the significance of which is apparent only when the final state of the system is reached. Thus the earlier activities in many organic sequences have the appearance of being unimportant in themselves, and of merely working toward the attainment of some definite final condition (end) which is of advantage to the organism. In this sense finalism refers to a real and highly characteristic peculiarity of living beings. The "end," however, in the case of the living being, appears to objective science simply as the continued existence of the species, i.e., the maintenance of its equilibrium with external nature.[1] Organic activities which have definite future consequences, i.e., which are prospective in their significance, are thus restricted to a certain course; they aid in preserving the individual or species, or at least do not interfere with this end. The species consists in the succession of similar individuals, genetically connected and having a characteristic distribution in space and time. Since each individual originates as an outgrowth from a parent individual, and gives rise to similar outgrowths in its turn, it is usually shorter-lived than the species. Typically we find that organic activities are directed to—i.e., have the end-effect of—the continuance of the species rather than of the individual. Individuals die and are replaced, while the species lives on. In general, as Weismann first pointed out, the individual lives until its reproduction is ensured; this is shown by the typical inverse correlation between the length of the individual life and the rate of reproduction.

Now any regular organic action having prospective significance,

[1] In the purely physical sense "end" can not be distinguished from final result or consequence. An end, however, in the usual sense of the word, is something foreseen and striven for, i.e., the object of *purpose*. No *physical* significance can be attached to such an interpretation; but it must be remembered that a purely physical consideration of reality is an incomplete one, reached only by abstraction from an experience that includes in its totality valuational and volitional elements (see below).

and which definitely contributes to the individual maintenance or the existence of the species, may be said to have finalistic quality, or to exemplify finalism. The most evident analogies of finalistic action are with the consciously purposive action of human beings; but we need not assume that all finalistic actions have conscious purpose (or something analogous, such as an entelechy) behind them; thus the seeds of many plants are furnished during growth with hooks, sails, or other special attachments which aid in future distribution. It is not difficult to show that any finalistic action, physically regarded, is not different in its essential end-effect from the other factors concerned in organic equilibration. The fact that a process—initiated, it may be, by a single special act, as development is initiated by fertilization—requires time to become organically effective does not alter its general character as equilibrative. From this point of view a reaction which is immediately defensive, like the avoiding reaction of a protozoön or a Hydra, falls in the same category with an action which is defensive in a more remote sense (such as storing food for the winter), or only from the point of view of the species (such as pairing, or making provision for the young). The species does not survive—hold its own in nature—without such activities; they are necessary factors in the preservation of the organic equilibrium.

To sum up: any enduring or persistent physical entity is one that is in equilibrium; hence, in so far as the persistence or equilibrium of an organic species in its environment depends on its own special structure and activities, these characters are necessarily species-conserving, or, as we say, adaptive or finalistic. The alternative is simply extinction. This consideration explains why we do not find non-adaptive organisms in free nature; and also why many adaptations seem from the human point of view to be ingeniously contrived to meet their end. This, however, need not surprise us. The only surviving adaptations, those which come under our observation, are the effective ones. It would seem, then, that many of the finalistic characters of organisms can be understood on strictly scientific grounds from such purely physical considerations. What is chiefly peculiar to the equilibrium between the living organism and external nature is that its preservation requires activities of a highly complex kind, in correspondence with the physical complexity of the system itself and its conditions of life. But this peculiarity does not change the essentially physical character of the equilibrium.

The characteristic vital activity of specific metabolic synthesis can also be regarded from the finalistic point of view and is so regarded by Rignano.[2] It is clear, however, that in a metabolizing

[2] *Scientia*, 1925, p. 229. For a discussion of the general significance of

system subject to continual breakdown, such as the living organism, continual automatic repair or replacement is the necessary condition of continued existence. The conditions of vital equilibrium require that the materials broken down and dissipated in the life-process shall be exactly restored. If the replacement were not exact (specific) the special or distinctive properties of the system, those on which it depends for survival, could not persist. Since, then, the persistence of the organism in its environment is dependent on its preserving intact its special pecularities of form, structure, and activity, and since these are dependent ultimately on the preservation of a constant chemical (as well as other) organization, it follows at once that the chemical processes of maintenance and repair must have a constant and specific character corresponding to the special character of the species. In other words, if the conditions of survival are to be fulfilled the metabolic as well as the other organic activities must have the effect of preserving the constancy of the species in its environment. The activity of specific synthesis underlies all the properties of the organism. It constitutes the stable foundation on which the higher vital characters are built. Without it the organic equilibrium would be impossible; accordingly, all organisms surviving in free nature are found to exhibit it. It is, in fact, the primary physical necessity of their existence.

We conclude that finalism, so far from being inconsistent with mechanism (i.e., physico-chemical determinism), in fact, presupposes it and rests upon it. No end can be regularly attained unless the methods used for its attainment can be relied upon, i.e., are constant or invariant in their operation. As Robertson shows in his paper on the "Mechanistic Origin of Finalism,"[3] mechanical regularity and determinism—the necessary conditions for the action of any machine—are implied in any predetermined course of action or in any process leading to a definite end. The attainment of any such end presupposes mechanism, i.e., a regular succession of similar actions and an invariance in the conditions of action. If this were not the case any constant or regularly repeated sequence would be impossible. The action of every machine is based upon exact repetition of certain sequences, i.e., upon cyclical action, and observation shows that this is also true of the living organism. It seems clear that the organism, since its processes are so regular—since, e.g., its development from the germ is repeated so exactly in successive generations —must be mechanistic in its constitution and operation in precisely

this process in living organisms, *cf.* my paper, "The Place of Life in Nature," this JOURNAL, 1920, Vol XVII, pp. 480 *seq.*

[3] *Scientia*, 1924, p. 93.

the same sense as any other regularly repeated physical process or cycle is mechanistic.

So far I have been advancing what seem to me the most cogent general considerations in favor of the mechanistic conception of life. I shall now attempt to characterize briefly its inherent limitations and inadequacies, considered as a philosophy of the organism.

That a purely scientific reasoning leads almost inevitably to the mechanistic point of view is seen in its almost universal acceptance among biological investigators. It seems, in fact, to be amply justified both by empirical evidence and by general considerations of the kind just reviewed. Yet on closer examination it is apparent that such considerations are partial only. Every biologist is aware of this in his non-professional moments: the possibilities of life are larger than the mechanistic view implies. This, however, is only another way of acknowledging that the whole mechanistic conception is an incomplete, derivative, or abstract one. In this respect it is like any other working human conception, no matter how satisfactorily it may sum up a certain side of biological experience. Its empirical validity is what gives it its present quasi-respectable scientific status. To regard it as philosophically final is a grave mistake. In criticizing it one has to transcend the purely scientific point of view and consider philosophically the nature of scientific procedure and principle in themselves. This is primarily a task for philosophers; but it is necessary that scientific men should take part, since the achievements and possibilities of science are best known to those with scientific experience.

In correspondence with the two contrasted points of view just outlined, we find a division in the tendencies of biological thinkers. As we have seen, observation shows that mechanism rules in nature and that living systems are no less subject to its control than non-living systems. The mechanistic group in biology recognizes this and sees no need of going further. By avoiding discussion, or perhaps by cultivating a certain dogmatism, they conserve their energies for research. On the other hand, those men who recognize in the mechanistic coherence of natural events simply a fixed condition or special constitutional pecularity of physical or objective reality—rather than the ultimate and only relevant property of reality in general—feel strongly that something beyond mechanism is implicated in vital qualities. What seems to these men especially characteristic of vitality is a certain creative and non-repetitive quality, which is apparently superposed on the purely physical routine demanded by the conditions of organic existence. Organic evolution is one expression of this tendency; original creation in human art and science is another. If such men are interested in the problem

of the *ultimate* nature of vitality, it is inevitable that they should have recourse to non-physical or even metaphysical considerations. Here they may seem to run counter to the admonition, "Physics, beware of Metaphysics," and, perhaps, they even incur a certain odium. This is unnecessary, and should be dispelled by a more comprehensive outlook, such as physics is in fact now attaining.

How can we effect a reconciliation of the two camps and a valid (even if only partial) solution of the problem? Only a summary discussion is possible in this place. First, we must recognize frankly that physical science does not and can not give a full and complete account of natural reality, but is essentially a process of abstract representation or schematization. Its method is abstraction, based on observation, the whole procedure being controlled by the condition that the picture, schema, or formula thus derived shall meet the test of experience. Just as any schema (such as a map) falls short of representing the whole reality for which it stands—although it may be a "true" representation of partial aspects and as such useful for certain purposes of action or contemplation—so the scientific representation of the living organism is partial only, and leaves out of account many essential characteristics. Yet if valid scientifically it is "true"—meets the tests imposed; for this reason attention is often distracted from its partial aspect. For example, any mental representation which I may make of the structure of living protoplasm is a model, and as such is necessarily a simplification or an abstract view. What the reality contains apart from the conceptual model may be provisionally disregarded, but this does not mean that it is non-existent. This lack of completeness is inherent in any conceptual representation of reality; hence many philosophers, notably Henri Bergson, maintain that reality is in its essential nature unrepresentable by intellect. It can be "understood" only in outline or in part, especially in its numerical or repetitive, i.e., mechanical or regular, aspects. Any scientific view is thus an incomplete view, i.e., it leaves unconsidered a residuum of reality of greater or less extent according to the degree of abstraction. This does not prevent its being either "true" or "false"; if true, it corresponds to the experienced behavior of things and may in the conceptual translation be regarded as equivalent to the reality; if false, the correspondence with reality is defective or absent.

These considerations apply to the scientific representation of the living organism and its qualities; all such representations are partial, yet many of them are true. Others are of doubtful validity, or are in process of being tested. Others are yet to be invented, on the basis of future investigation. No limits can be set to the possibilities of the scientific representation of vital phenomena; nevertheless its

partial or schematic character must not be overlooked. To say, for example, that life is "nothing but" a combination of chemical reactions in a colloidal substratum is unscientific. Life may be, and apparently *is*, that, in part; but to regard any such scientific formulation as a complete and adequate representation of its total reality is simply to misconceive the nature of science.

The broadest physical generalizations, such as the thermodynamic laws, give a true insight into certain fundamental features and conditions of reality, although, as has often been pointed out, they do not enable us to predict detail and they do not account for existing detail. They represent conditions or restrictions within which apparently almost anything may happen. The ultimate agency behind the visible occurrence is of unknown and probably of unknowable, i.e., conceptually unrepresentable, nature; for this reason as well as for others we may be sure that while the progress of physics will improve our insight, it will not in itself resolve all the problems of nature. The living organism represents a special differentiation within the natural continuum, and as such partakes of the physical characteristics and restrictions. For example, no one with the best will in the world can ever seriously hope to construct a perpetual-motion machine. To say this confidently is not dogmatism, but simply sums up what scientific experience has taught us regarding the way in which events happen in the physical world. Similarly in the mental world—Santayana's "realm of essence," which is interlocked with ("tethered to")[4] the physical world—nothing seems to occur which is incompatible with the physical nature of the correlative processes. We can not think at more than a certain rate, nor can we think to best advantage when the nervous system is depressed by fatigue, anxiety, or disease—just as we can not see when the optic nerve is severed. These are simply experimental facts illustrating the permanent interconnection of mental and physical. The ultimate nature of this interconnection is unknown; but the fact itself is perhaps best understood by assuming a unification in some background of reality which is only partially reflected or symbolized in experience.

Similarly, the power of the organism to transform its material in the interest of its own preservation—the distinctive vital property—is limited; a man can not regenerate a lost arm, although a salamander can. No organism can continue to live without access of special materials and energy from without; even a deficiency in certain inorganic substances, present normally in extremely minute

[4] "The kind of intellect that we know of and possess is an expression of vital adjustments and is tethered to nature." Santayana, *Winds of Doctrine*, p. 121.

quantity, may result in structural or physiological breakdown; this is illustrated by the effects following the deprivation of iodine in man and higher vertebrates. Other illustrations of the delicacy of the chemical balance are seen in the various "deficiency diseases" of man, such as diabetes, which is cured by administration of minute quantities of a special substance (insulin) synthesized in the pancreas.

Many such examples are adduced by mechanists to illustrate the dependence of the vital on the physico-chemical. Undoubtedly they do show that the chemical reactions and other physical processes in the organism are subject to the same general conditions, spatio-temporal and energetic, as in non-living nature. Such facts amply justify the application of physico-chemical methods to biological investigation; but they do not warrant the conception of the living organism as simply and solely a physico-chemical system, since such a view would imply that a complete account of the reality of the organism (or, indeed, of all nature) could be rendered in terms of scientific abstractions. In other words, it would assign to these abstractions a status in reality which philosophical criticism shows they do not possess.

The dilemma of vitalism is irresolvable so long as we regard the units, concepts, and formulæ found valid in physical science not as abstractions, but as primary and self-existent realities, by a combination of which all the properties of living beings (as of other phenomena in nature) are to be derived. If, however, we regard them as simply representative of (or symbolic of) certain features and activities inherent in the constitution of an underlying reality, and if, further, we regard this reality as comprising not only external nature (the spatio-temporal scene or cosmos), but also some agency which acts *through* or *into* nature—although restricted in its natural expressions by fixed conditions, such as those appearing in scientific conception as atomism or the thermodynamic laws—we reach a point of view which is fully consistent with the physico-chemical interpretation of vital phenomena, and at the same time leaves the field open for philosophical interpretation of a more broadly inclusive kind.

It appears to be true that whatever nature can bring forth is limited by conditions of the kind disclosed (in part) by physical science; yet within these limitations the possibilities of evolution and synthesis seem endless. We divide the whole domain of our experience by abstraction into mental and physical fields, and each of these has become the subject of a separate and highly developed science; yet neither field is self-existent or a law unto itself alone. Certainly the intellectual activities of the artist or man of science must take account of physical conditions or they are ineffective. This

is a truth which may be forgotten, illustrated in human history by the long list of men of genius who have thought they could continue to live and create in defiance of physical and physiological principle. The spiritual tends to forget its limitations by the physical. Conversely, what we agree to call the spiritual appears at times to act directly as a transformer of the physical, as in artistic or other creation. Such experiences can not be accounted for on physical grounds,—for one reason because it is in the very nature of physical abstraction to rule out as irrelevant all factors of a volitional or other "psychic" kind. To trace the course of the physiological processes accompanying an act of intellectual creation would undoubtedly give us curious information, of a kind, but would throw little if any light on the essential nature of the reality underlying. For this a totally different kind of insight would be required, bearing on other aspects of reality than the physical, but on just what aspects it is impossible to say. No one can consider the problem of vitalism without recognizing how much larger reality is than abstract conceptions. We may find it difficult to conceive of influences acting into the spatio-temporal continuum from without; but some such characterization of the conditions seems required by many of the facts of vitality.

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NAÏVE PSYCHOLOGICAL REALISM VS. CRITICAL REALISM

THE term "realism" has undergone some strange changes in the course of its long history, yet one may begin by expressing surprise that one can fly the banner of realism—critical or otherwise—while holding, as Professor Durant Drake does, that the "*substance* of existence, everywhere is psychic stuff, sentience."[1] One learned as an undergraduate to regard such a view as peculiarly idealistic, as constituting, indeed, the common ground of Berkeley and Leibnitz. One was taught, to be sure, by rather wearily sarcastic idealists that some kinds of realism were only Berkeleyan idealism standing on its head. But this position of Professor Drake's is not merely Berkeley inverted; though no doubt arrived at by other means, it *is* Berkeley.

Yet having said this, one pauses. For Berkeley never admitted that his view was not "realistic." He took, he contended, the position of the common man. Our perceptions are real and what they seem to be. Not so our modern critical realist. For him "the psychology of perceiving is similar whether perception happens to be

[1] See his paper in *Mind*, XXXV, 230–237.

veridical or illusory'' and with good reason, for it is always essentially illusory. Sensa are never what they seem. In reality they are always brain states, brain states which sometimes ''correspond with'' external objects. We are conscious, he tells us, because psychic existents are exteriorized and hence falsified (*Loc. cit.*, 235). Consciousness is essentially falsification.

Where in all this is the typical realistic confidence in things as they seem, in the essential correctness of the deliverances of our senses as enabling us to become aware of ''real'' objects? Surely this is a strange and topsy-turvy realism. Apparently this is to be called realism only because there is posited behind all this illusion some sort of real *Ding-an-Sich*.

Well, perhaps we must permit each philosopher to define his particular view as realism if at some point or other it makes contact with doctrines which have historically borne the name. In that case we shall not need to plead indulgence for naming our own position naïve psychological realism. We are interested in this viewpoint primarily because it enables us to avoid a host of difficulties—unnecessary ones, apparently—in the science of psychology.[2] But this naïvely realistic psychology seems to have a certain significance for epistemology, and, indeed, also for ontology.

Not that one thinks of it as determinative. Being for psychology only a postulate pragmatically justified, it can not pretend to lay down the law to ultimate metaphysics. But there are difficulties seemingly perplexing some philosophers which are due to a misconception of the psychological situation. The difficulties cited by Professor Drake may be taken as examples; they are typical. Sensa can not be identified with parts or aspects of physical things, we are told, because of the non-veridical nature of some perceptions. Strictly speaking, that is the case. Only we ought to begin our analysis with the perceptions, illusory or not, rather than with the reflectively abstracted sensa. And then the true statement seems to be, not that the percepta are parts of aspects of the physical thing, but that the physical thing is part or aspect of the perceptum.

The story is an old one but it seems to need retelling. It is only in actual lived experience that we find concrete reality in the fullest sense of the word. Only, if we are to understand this reality as it is, we must take all of it and not just some artificially abstracted part of it. And all of the reality which is experience includes as inherent parts of itself certain spatial and temporal attributes: ''Objects'' can not be considered in the first instance apart from these attributes. It is this fact which enables us to resolve most of the paradoxes of

[2] Compare a paper by the present writer in *The Psychological Review*, 33, 1926, at pages 299–301, which deal briefly with this matter.

perception; the penny which looks elliptical is really elliptical when we include—as we must—the space-time attributes which belong to the penny as it lies embedded in experience.

Put in another way, what we perceive is always a total situation, of which what we call physical objects are only a part. In this total situation, the parts are influenced by the whole. Indeed, there seems merit in the suggestion to which the *Gestalt* group of psychologists have renewed attention, not as a philosophical doctrine, but as a matter of experimentally observed fact in the field of perception, that the parts are constituted by their membership in the whole, while reciprocally influencing the other parts or members. And no less than quality and intensity, which have come to seem to belong to the object in its own right, are the space-time characters constituent members of the true perceptum or total experienced situation.

From an epistemological point of view, though doubtless not from an ontological one, it is the merest accident that by abstracting from some at least of the space attributes—how strange that Descartes should have deemed extension of all other qualities inherent or primary—we can reach a practical control over our environment which is otherwise unobtainable. But it is incontestable that the common-sense attitude towards physical objects does involve such an abstraction from the primary reality of experience. Why this should be is a problem for the genetic psychologist and, perhaps, also for the genetic logician, which they may be expected to solve in the fullness of time.

Not essentially different is the solution for the problems of illusion and of outright hallucination. The problems are again genetic; what factors in our history bring it about that certain experiences do not accord with those of other persons, with other experiences of one's own, with expectation? That the problem is enormously complex, no one can possibly deny. A beginning has scarcely been made, though the renewed attack upon the problems of perception by the German configurationists is hopeful. But the problem, one insists, is strictly psychological; it really has no particular relevance for metaphysics. (One may, if one wishes, say that it is merely psychological and thus dismiss it as unimportant.) A philosophical problem is created only when one deliberately reverses the reality scale; when one takes the physical object as the primary point of reference and tries to make the perceptum correspond with it. Always the perceptum is much richer than the physical object; always, therefore, there will be much in the perceptum which can not be expected to correspond with the physical object. Necessarily so, for the physical object is merely an abstract.[3]

[3] Such a view, though it insists that percepta *never* correspond exactly with

Professor Drake tells us that such a view—one supposes it to be more or less what he has in mind—"would be to substitute a highly artificial and anthropocentric conception of what a penny is" (*ibid.*, p. 231). Anthropocentric it may be, artificial it certainly is not. One may not appeal to common sense, as apparently here he is doing. Not only is common sense so inconsistent that demonstrably it can be used to support *parts* of any position; but in this case it is peculiarly unreliable. For the effort to control our environment has led us to take a highly sophisticated attitude towards our perceptual experiences. In psychological observation this leads to what has been called the stimulus error. Those who have watched children slowly work their way to a realization of the unreliability of perception—for primarily practical purposes, which means for the purposes of muscular manipulation—will have no question as to what is meant. It is the notion of "an existent with one definite set of characteristics, which do not change" which is artificial, and it is not less artificial because the man in the street shares it with the physical scientist.

By taking experience at its face value, psychology by no means gets rid of problems. But the problems are then the genuinely psychological ones. Indeed, the province of psychology might be defined as the study of the problems which arise when we take experience at its face value. What we are trying to suggest is that the philosopher does not do well to find metaphysical difficulties in paradoxes, which proceed only from a highly artificial and unpsychological way of conceiving experience.

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BOOK REVIEWS

The Story of Philosophy, The Lives and Opinions of the Greater Philosophers. WILL DURANT. New York: Simon and Schuster. 1926. xiii + 577 pages.

So seldom is any one called upon to assess with seriousness a best-seller in the field of philosophy—in this case a book hailed by the unanimous hosannahs of whole hosts of newspaper critics—that there is a very human presumption in favor of solitary dissent, because—for no other reason—some of the book's real merits are apt to escape notice in the deafening chorus of panegyrics. Popularity

physical objects, is far from making perception illusory or non-veridical. It denies that correspondence in such fashion is the criterion of illusion. It is obviously absurd to make the truth of the whole depend upon exact correspondence at all points with one of its parts.

with the general public automatically anathematizes any volume in the eyes of many of the habitually discriminating. How, they reason, or perhaps better, react, can any work that is touted by the modern broker-publisher, puffed by superficial book-tasters, and devoured by crowds of culture-sippers in search of thrills, be of intellectual significance?—a most unjust prejudice in this particular case, but surely philosophers, even more than most men, may be forgiven it. So accustomed are they to seeing masterpieces of thought long remain worst-sellers (see *The Story of Philosophy*, pages 156, 174, 215, 306, 331, 393–4, 485, 533) that they may be pardoned their first natural suspicions of so exceptional a phenomenon as the present prosperous enterprise. It is, and of right ought to be, hard to convince teachers of philosophy that "humanization" does not mean pandering, that a popularization of the history of philosophy can be both sound and super-salable, both scholarly and sensational, that it can, in the fulsome words of the publishers' dust-cover enconium "capture the interest of the layman and command the respect of the most erudite Ph.D." This may be said without subscribing for a moment to the absurd notions that philosophy is somehow inherently repulsive to the adult mind and can be made attractive only by superhuman efforts, or that it has now *"for the first time"* been made *"really intelligible and fruitfully related to the actual problems of life,"* [1]—the job of every teacher of its history who ever lived. These teachers, incidentally, have known only too well that their absorbing subject-matter could provide the stuff of not only one, but many best-sellers. Few of them, at one time or another, have not purposed to write one. Several have tried. But no American before Dr. Durant happens to have succeeded. His *succès d'estime* is bound to be admired by some and scorned by others; it should interest everyone, no matter how incurious concerning the secrets of commercial achievement, who seeks to arouse men to philosophizing.

We live in an age of outlines, of stories of this and that. History, science, literature, art, and christianity, in turn, have been subjected to this newest method of high-pressure exploitation for the multitude. Originally designed as honest, although drastic and hasty, attempts to cure the obvious academic diseases of over-accumulation and over-specialization, these *hautes vulgarisations* have been so vastly profitable that the *basses* have swiftly succeeded them in an indecent scramble for circulation. "To popularize" has come at the hands of many writers to mean simply "to make easy." Men of high academic degree have stooped to commit "humanizing" which can only be described as meretricious jazzing of

[1] Both the words and the italics are the publishers'.

the encyclopædia. Philosophy was bound to have its turn, and although an outline of it may yet be perpetrated by some self-appointed committee, we may be thankful that its story, in a somewhat limited and American sense, has been told by so well-qualified and conscientious a popularizer as Dr. Durant.

His unique experience as lecturer to large popular audiences in New York City has stood him in good stead. Nearly every page of his book bears witness to his careful testing-out of the material most likely to interest a wide variety of hearers. Thoroughly accustomed to speaking without dullness to the "general listener," he has turned to the general reader with an unfailing supply of what actors call "sure-fire stuff." In this, for his particular purpose as a writer, he is fortunate. Too many books by professors in cloistered institutions fail to appeal to the reading public because they are obviously derived from lectures to undeveloped undergraduates. They are ladened with gratuitous information, academic macrology, and the urge to improve the morals of growing boys. Dr. Durant has been privileged to address himself, as a lecturer, to adults in full standing, who, though not advanced in formal education, have a background of experience that is absent in the sophomore. His book gains in sophistication from this source. His comments are less guarded than those of the conventional textbook. The air of worldly wisdom about the whole performance is certainly one of the secrets of its popularity among the *soi-disant* intelligentsia.

The Story of Philosophy is not "just another outline," nor is it by any means a story in the usual sense of a continuous narrative with a well-defined plot. Its subtitle *The Lives and Opinions of the Greater Philosophers,* is less marketable, but more accurate. The author states with laudable directness the scope of his intent: "This book is not a complete history of philosophy. It is an attempt to humanize knowledge by centering the story of speculative thought around certain dominant personalities." The emphasis is frankly upon the intimate and the temperamental rather than upon the ideological and the systematic. It is philosophy "clothed in the living form of genius." As such it forestalls the sort of criticism in detail that is visited upon the less literary type of historiography.

Who are the "greater philosophers" among the great? And who, in terms of pages and praise, the greatest among the greater? Concerning this, at least, we have reason to doubt that (as the author says in another connection, p. 195) "philosophers seldom disagree." What two interpreters of the history of philosophy can be found who assign the same relative importance to each of the

great figures of the past, let alone those of our own era? Historical and philosophical perspectives vary notoriously. We must not blame the observer on Mars, in this relativistic age, for not being on Jupiter instead. Yet stars, even those of the firmament of philosophy, do have magnitudes, and discussion of them is not entirely futile. The author's choices, as indicated by chapters or major divisions thereof, are Plato, Aristotle, Francis Bacon, Spinoza, Voltaire, Kant, Schopenhauer, Nietzsche, Bergson, Croce, Russell, Santayana, James, and Dewey.[2] Besides these fourteen *sommités*, five others, Socrates, Locke, Rousseau, Hegel, and Comte are honored with briefer notices and portrait plates. Before calling the roll of conspicuous absentees, it will be well to examine the specific bias of the book, which the author freely admits. Concerning the vexing question of omissions, he says:

> Certain lesser figures have been omitted in order that those selected might have the space required to make them live. Hence the inadequate treatment of the half-legendary pre-Socratics, the Stoics and Epicureans, the Scholastics, and the epistemologists. The author believes that epistemology has kidnapped modern philosophy, and well nigh ruined it; he hopes for the time when the study of the knowledge-process will be recognized as the business of psychology, and when philosophy will again be understood as the synthetic interpretation of all experience rather than the analytic description of the mode and process of knowledge itself. Analysis belongs to science, and gives us knowledge; philosophy must provide a synthesis for wisdom [p. xiii].

This indictment of epistemology, familiar to the readers of Dewey's *Reconstruction of Philosophy*, recurs in no less vigorous language at intervals throughout the book. Aside from interjecting, concerning psychology, *Quis custodiet istos custodes?*, it will hardly be possible to go into the merits of the point of view which minimizes such figures as Descartes, Leibnitz, Locke, Berkeley, Hume, Fichte, Hegel, Royce, Bradley, Rickert and Husserl, to mention only a few.

More fruitful than the discussion of such irremediable matters as what some will regard as the omission of the epistemological Prince of Denmark (not to mention the metaphysical Horatio and the logical Polonius) from this particular Hamlet, is the matter of the author's positive predilection in favor of the "social control" philosophy. This appears very clearly in his earlier *Philosophy and the Social Problem* (1917), where he extols the Baconian interest in control as against the Cartesian interest in certainty. The same bent manifests itself in the present volume and accounts for the unusually large amount of space allotted to Bacon, Voltaire,

[2] To each of these up to and including Nietzsche, a chapter of about fifty pages is devoted. The six contemporary thinkers are allotted from ten to twenty pages each.

and Nietzsche, and the stress laid upon the social aspects of the thought of Spinoza, Kant, and Schopenhauer. No one will dispute the claims of the first three to genius and influence, but many will continue, as does Dr. Durant himself in the case of Shakespeare (p. 155), to deny the name of philosopher to one who "has no structure of thought unified by a purpose for his own life and for mankind." In the case of Voltaire especially, one fears that there may be something revealing and *à propos* in a chance phrase used by the author when he refers to the subject-matter of Croce's periodical as "the world of thought and *belles lettres.*" But labels do not matter nearly so much as the author's contagious assumption that a philosopher's most important contribution to humanity is necessarily to social theory. There have been great philosophers who have ignored the social problem, or have nodded over it sadly. It is because the present reviewer agrees wholeheartedly with the general social emphasis that he points out that a different rendering, quite as legitimate, would produce a different, almost certainly a less popular, story of philosophy.

In view of the breadth of the book's title, it would have been an excellent thing had the author seen fit to point out explicitly at the start that "philosophy" for him means western or European philosophy. A useless gesture, perhaps, and yet comparative philosophy has made a beginning in dispelling the provincialism of our conventional ancient-mediæval-modern version of world-history,[3] and we may some day catch up with Voltaire's "impartiality of a Martian" (p. 243). At all events, after an introduction that really "leads in" to the coming narrative, and is a model of restraint and pointed brevity, the author plunges boldly into the stream of European thought, and with a few quick strokes arrives at the mighty river which is Plato. The Pre-Socratics, as everybody knows, are a perpetual problem to the teacher of philosophy, who is as cruelly pressed for time as Dr. Durant for space. Shall one begin with Thales or Plato? There is much to be said for his rapid approach to the latter, bringing in the early physicists under "Greek Science before Aristotle." This foreshortens the picture and leaves Plato without the background of the controversy over change, but in literature and pedagogy, to borrow a figure from Hoyle, it is often well to lead one's ace.

The account of Plato's social philosophy is admirably succinct. The theory of the ideas is in the background, and the allegory of the cave, usually so useful, is hardly mentioned. Some would

[3]Scathing denunciations of the narrowness of contemporary teaching in this regard may be found in Masson-Oursel, P., *Comparative Philosophy*, pp. 202–5 and Spengler, O., *The Decline of the West*, I, 16–25.

quarrel with the dramatic portrayal of Socrates as "the intellectual leader of the revolting party" in Athens, and the "source of the hated aristocratic philosophy," but no one will fail to rejoice that many thousands of new readers are to listen to the great music of the *Phædo*. There are pitfalls for the ignorant in the failure to distinguish more carefully the Platonic and the historic Socrates; in the loose statements concerning Plato's idea of a "living God"; and in the inter-mixture of passages from the *Republic* and the *Laws*, without pointing out, until the last page, the differing moods of the two books. Many will be surprised to see the clergy of the Middle Ages posing as examples of the practicality of Platonic guardianship, and also to notice how little stress is laid upon what is perhaps the chief limitation of all Greek political theory from our point of view today, its small scale in terms of population. In his rather naïve proposal of a single amendment in order to bring Plato's Utopia up-to-date, namely, the enacting of equality of educational opportunity by means of scholarships on the grand scale, the author displays some of the proverbial impracticality of the theorist that he is quick to condemn in others.

Not being intended as a contribution to original scholarship, but rather as a work of art, the book deserves something better than a meticulous picking of flaws which are half the time mere differences of interpretation and emphasis. Dr. Durant reaches real eloquence in the chapters of Spinoza, Bacon, Voltaire, Spencer, and Nietzsche, men for whom he feels a real enthusiasm and of whom he writes with evident gusto. If we mistake not, many readers will admire the book for these chapters alone. There is less color, less heat, and less light in the chapters on Aristotle, Kant, and the section on Croce. In the case of Spinoza, the author has wrought a miracle of lucidity and interest upon the most difficult material by the sheer contagion of his own enthusiasm; but where he feels less keenly, the hard-going remains hard-going, despite his earnest efforts to make Kantians of all his readers in words of five syllables.

The transitions between many of the chapters are inadequate from the point of view of the book's main title. By heroic measures a dizzy foot-bridge of nine pages is thrown across the gap between Aristotle and Francis Bacon. There is no attempt to link the chapters on Bacon, Spinoza, and Voltaire. After Kant the filiation is easier. On pages 110–11, is presented a "Table of Philosophic Affiliations," which, if included at all, should have been much more fully elucidated. It is illuminating to discover Heraclitus at the upper left, Bergson at the lower left; the Sophists in the upper middle, James in the lower middle; Democritus at the upper right, and Santayana at the lower right. But the nature

of the intervening links is in many cases anything but obvious, and this book does little to explain them.

The publishers have furnished a sumptuous volume at what would recently have been a prohibitive price for a best-seller. The one incredible defect is the lack of an index. The device of Anglicizing Greek phrases (such as *meden agan*) gives no inkling of their pronunciation to the novice and is hardly to be preferred to the original with translation. Dr. Durant's style is so admirable that we deplore his occasional lapses into the lecturer's habit of beginning sentences with "And—," as well as into the coining of adverbs from awkward adjectives, *viz.*, Euclideanly, Baconianly, Dantesquely. The publishers have made no secret of the fact that the book contains a good deal of what the Queen of Sheba is said to have brought to King Solomon, namely, spice, but their placarding of these anecdotal tidbits ought to be considered sufficient punishment for the author.

The chapters on contemporary philosophers both invite and forbid criticism, for they are crisp appraisals without being especially new. There is a stirring psychoanalytic account of the post-war reincarnation of Bertrand Russell, with some closing bits of piety which he will hardly appreciate. Bergson "may share the fate of Spencer, who lived to be present at the burial of his own reputation. Yet, of all contemporary contributions to philosophy, Bergson's is the most precious" (p. 507). Santayana receives more space than any other contemporary, with deserved praise for his *Reason in Religion*. Croce baffles, without challenging, the author's best efforts, or the reader's. The interpretation of James as a thoroughly American philosopher with the voice of an easterner would profit by a closer study of his father and grandfather. The lack of any reference to his inimitable *Letters* is inexcusable. Upon each philosopher in the book, save John Dewey, with whom the book closes, there is a section headed "Comment" or "Criticism."

The author gives the impression of "Americanizing" the story of philosophy in his concluding chapter without giving an inkling of the real story of American philosophy, which includes more than the Pragmatists and Santayana. In his "Conclusion" he casts a hopeful glance toward the future. Throughout the book he has stressed necessity of wealth and leisure for the development of speculative genius. Applied to ourselves, the theory yields the familiar "for we are still young . . . let us remember that England needed eight hundred years between her foundation and her Shakespeare . . . France eight hundred . . . for her Montaigne . . . we have had to spend our energies in clearing our great forests . . . we have had no time yet to bring forth . . . a mature philosophy. But we have become wealthy, and wealth is the prelude to art . . .

a people too must live before it can philosophize. No doubt we have grown faster than nations usually have grown; and the disorder of our souls is due to the rapidity of our development. We are like youths disturbed and unbalanced for a time, by the sudden growth and experiences of puberty. But soon our maturity will come; our minds will catch up with our bodies, our culture with our possessions. . . . When we have learned to reverence liberty as well as wealth, we too shall have our Renaissance."

Such whistling-up of courage may be deemed patriotically necessary, in view of the smallness of the American contingent among so many alien geniuses, but it is based on less than half the truth. Our cultural history is utterly unlike that of France or of England. A nation of emigrants, we found our social philosophers full-blown within a century. Until recently, unless theologically or politically-minded, they have lacked an audience. As for the future, we should have no confidence that wealth will somehow breed philosophers. A look at our own past should be instructive. We are all prone to refer somewhat wistfully, as does Dr. Durant, to "the finest School (*sic*) of Philosophy that any American university had ever known" (p. 532). We should remind ourselves occasionally that those geniuses of the 'nineties were also tirelessly hard workers. Reverencing wealth, if it means dilettantism and distraction, is a poor preparation for reverencing liberty.

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Theory of History. FREDERICK J. TEGGART. New Haven: Yale University Press. 1925. Pp. xix + 231.

Shortly before the war a French historian was moved to speak of the "*malaise* from which history is now suffering," and ever since then evidences of the growing acuteness of this malady have been multiplying. Discussions of its symptoms and prescriptions for its cure are made with increasing frequency, so that the book before us is at least the third to appear in the United States within a twelve-month to tell us what history must do to be saved, while similar works are pouring with equal speed from the presses of Europe.

Although the word "history" appears in its title, the present work aims at a larger field, and will be of interest to sociologists and other students of the social sciences as much as to the historian pure and simple. Taking as a starting-point the widespread demand for a true science of man, Professor Teggart endeavors to show why it is that the efforts of historians and sociologists have not yet culminated in any satisfactory science of this sort; he then

proceeds to elaborate a method for the study of human society which, he believes, will satisfy the most exacting requirements of modern science. Perhaps the constructive part of his study, describing the new method which he proposes, is not so impressive as is his criticism of the generally accepted methods of today; but this criticism by itself is enough to make the book one which should be read and pondered by every student of the social sciences, and above all by every historian—especially if that historian is still laboring under the fond impression that his studies are, in any true sense of the term, scientific.

The book is divided into three parts, the first containing the author's criticism of conventional historical writing, the second his criticism of the sociologists, and the third presenting his own views on how society should be studied and history written. Part I is entitled "The Study of Events." In it the author admits that the present methods of historical research are excellent for the discovery and criticism of individual facts or events; the trouble with present-day historical writing is that historians are not content to stop with relating these facts which they know, but insist upon weaving them into narratives—and the minute they do that they cease being scientists and become artists. "With whatever care the facts are sifted, and with whatever sincerity they are subsequently presented, narrative statement remains art, and, as such, is not science." By adopting this mode of presentation for their results, historians "have shut themselves off from any possibility of the attainment of scientific results." A narrative requires a thread upon which the individual events may be strung, and simple observation does not provide any such thread: the analysis of any sort of history would show this statement to be true, but especially when one turns to national history or world history does the difficulty become evident. National history (unless it be merely the story of the vicissitudes of the government of a given country) is really the combined histories of innumerable localities, each having little or no connection with the other; the lack of unity in world history is even more obvious. "If the history of Rome is to occupy the center of the world-stage at the beginning of the Christian era, where are we to find a place for the Chinese empire under the Han dynasty?" "History is not unitary, but pluralistic." Their narrative methods thus force historians to become philosophers: a pattern of historical development is arbitrarily selected to act as thread, which is based upon the writer's own peculiar philosophy of history, and to which the facts are fitted. "The pattern which the historian reads into the facts is his own creation; the 'whole' which he sets forth does not inhere

in the happenings of time, but takes form in his imagination." It thus comes about that the "historian obligates himself, as a preliminary to the writing of history, to a decision upon the most vexed and difficult problems of philosophic thought." It is especially when he comes to consider cause and effect in history that these unscientific presuppositions, and the historian's own imagination, come into play; yet without such considerations, history of the conventional type can not be written. The historian who writes narrative history is therefore something of a philosopher and artist, and as such may be of service to his fellow-men; but he is never a scientist, and scientific results can not be expected from his work.

Part II is devoted to "The Study of Change." After an interesting chapter on the development of the idea of progress, the author shows how Auguste Comte and his disciples have applied this idea in their study of sociology, anthropology, and ethnology. What these scholars have actually done, according to Professor Teggart, is to take all the varieties of civilization known to them, to arrange these in an "ideal order," beginning with the ones which they consider the simplest and ending with the most complex (or, more exactly, with their own), and then to use this table as an illustration of the "natural course" of human progress. From it they then deduce the theory of the slow and automatic progress of society, but at no point do the facts of history have an importance for these writers: indeed, Comte is alleged to have thought of sociology as "abstract" history, *i.e.*, history with the facts left out! It therefore seems that the historians, who, after all, do have a certain respect for facts and are unhampered by any such traditions as that of "slow, continuous modification," are better prepared for the scientific study of society than are their colleagues who devote themselves to the other social sciences. If only they would adopt more scientific methods, all would be well!

With the ground thus cleared before him, Professor Teggart turns, in Part III, which is entitled "The Study of the Present," to the development of his own views on how society should be studied. An introductory chapter is devoted to "The Method of Science," for the author takes exception to the "scientific" character of the work of other historians on the ground that these men have derived their whole conception of scientific procedure from such philosophers and literary men as Descartes and Francis Bacon, each of whom died a long time ago. "The great object of scientific work," he then maintains, "is not the 'discovery of laws,' but the investigation and description of the processes of nature." In like manner, the historian should not seek to discover and formulate

"laws of history," but rather to describe conditions as they are, particularly noting the differences between different societies of today, and then endeavoring to account for such differences. In the author's opinion, these differences will be found to be due to historic events, or "intrusions" from without, which have at various times upset the differing societies and compelled them to take on new forms. This is what the author calls the "method of Hume and Turgot," for Hume's essay "Of national characters," begins with the query, "Why does one nation differ from another?" while Turgot, after translating Hume's essay into French, used the same method in some of his own studies.

After a few further remarks upon the difficulties of present-day historians, Professor Teggart brings his book to a close, rather leaving the details of his method up in the air, as it seems. But he undoubtedly realizes this defect himself, for in one passage he remarks that an actual study elaborated along these new lines will be of more importance than a theoretical discussion of the method. It will be well, therefore, to suspend judgment upon the method until a study has actually appeared. But in the mean time, historians and sociologists should reflect upon the many criticisms of their present methods which Professor Teggart brings forward: some of these are, perhaps, themselves open to criticism, but many others are extremely acute and well taken. On the whole, this book, compact and rich in ideas, is the result of a sustained piece of careful thinking which may well lead to interesting results.

It is impossible, however, for the present reviewer to lay down his pen without a few remarks upon the fundamental subject of the book—the creation of a "science of man." As Professor Teggart points out, the cry for such a science goes up on every hand. Men have been mightily impressed of late by the spectacular achievements of natural scientists in mastering the forces of the physical world, and it can hardly be denied that there are social forces calling for similar mastery. No wonder, then, that men call for a science of man to teach them how to do this very thing. But it seems to the present writer that the difficulties which have prevented the satisfactory establishment of such a science are more fundamental than questions of method: even if it were possible to achieve complete accuracy (which it is not) history could never become a science comparable to the natural sciences: the reason is that human society is a very different thing from physical nature, and the historian's relation to it is necessarily very different from the scientist's relation to nature, so that comparisons between the two are bound to be misleading.

The social scientist is himself a member of the society he is

studying, and, try as he may, he can never get away from this fact. It makes no earthly difference to the natural scientist how his problem works out, but it may make all the difference in the world to the social scientist how his works out; even though he confines his studies to savages or criminals, his generalizations will ultimately embrace society as a whole, and therefore the only solutions of his problems which he will be willing to accept are ones that make adequate provision for himself, his friends, his social class, and the various groups to which he is loyal: it is vain to expect him to commit *hara-kiri* if he finds that he or they are the cause of society's woes.

This fact, that the social scientist is himself a part of the society he studies, also seems to involve him in logical difficulties. One of the most important things about a society is the conception of it and its workings which is entertained by its individual members: anything tending to change these ideas must have a profound effect upon the society itself. The question then arises, would information based upon the observation of unenlightened societies hold true for those possessing a true science of man, and would it assist the social scientist in mastering the social forces of such a society? It certainly would not, for the new ideas thus acquired could not fail to have a revolutionary effect upon the society studied, and a new society, acting and re-acting in a new way, would result. If a chemist makes some observations upon a chemical substance, say the newly-discovered element "Illinium," the Illinium is just the same afterwards as it was before; but whenever a sociologist makes and publishes any important observations upon society, this fact in itself changes the society and obviously the newly-acquired information can not be of scientific aid to him in dealing with the new society. Observations upon the new society would be required for that, but they would upset it in the same fashion, and so on, *ad infinitum*; science could never catch up.

This sociological importance of knowledge is sometimes admitted by certain writers, to be sure, some of whom even go so far as to say that if only everybody knew as much about society as they do, most of our troubles would evaporate overnight; but this is a pious hope, rather than scientific knowledge, for how do they know what would happen under the circumstances? The experiment has never been tried. No scientist knows what will happen the first time he performs an experiment (or else there would be no real need of his performing it at all); the importance of his work lies in the fact that he assumes that the second time he treats the same material in the same manner, the same results will follow. But for the social scientist, there can be no "second time," because,

as has just been pointed out, every experiment necessarily and fundamentally changes the nature of the materials for all time to come. The error of those who speak of the "science of man" lies in their assumption, dating from the eighteenth century, if not from the Stoics, that there is a universal and unchanging human nature at the foundation of society, upon a study of which they hope to base their science. It is, of course, undeniable that there are many elements in society which are wide-spread and fairly constant, and it was these which attracted the attention of the eighteenth-century writers who first conceived the idea of a science of man; but the assumption that these fundamental qualities of man and of society are as eternal as those of Illinium is denied by experience and contradicted by the Darwinian Theory.

It would, therefore, seem that those who put their trust in a "science of man" are in much the position foreseen by certain Stoics of old; it will be remembered that these philosophers held that all history goes through enormous cycles, so that each event which happens today has happened in exactly the same way countless times before; but if someone called upon the philosopher to put his theories into practice and foretell the future by showing what followed the present set of circumstances the last time they occurred, he was informed that no one would possibly remember these past occurrences or what happened next after them; for if someone did remember something, the present would then differ in just that degree from the time before when nobody remembered anything; a different series of cycles would be in progress, and his information as regards the past would do him no good. This is a real problem, and one which social scientists have not yet sufficiently considered; yet if these reflections are sound, it would seem that the social scientist could, from the very nature of things, never get very far from the un-scientific practice of pure speculation. Perhaps this is one reason why the writings of Aristotle upon social matters are still regarded with a respect not accorded to his works upon natural science: his speculations in the former field are still about as good as anybody else's, but in fields where the progressive accumulation of positive knowledge is possible, he is now hopelessly antiquated. This fact, that what passes as "social science" is and must remain speculation, also seems to explain another fact, emphasized by Professor Teggart, that, in spite of all their talk about "objectivity," our present social scientists have as yet presented us with nothing more than their ancient beliefs and prejudices writ large.

On the other hand, can we say that, in the final analysis, the social troubles of our day are due to our ignorance of the workings

of society so much as they are due to our disagreements as to just what things, in the long run, are really worth doing? Even the natural scientist does not pretend to tell us what these are: he can often tell us how to do what we want to do; but he can never tell us, except in a very secondary way, what we should want to do. For such matters as this, the scientist is not and never will be able to dispense with the humanist and the prophet. Likewise a social scientist could never teach society any great end worth working for; but in times past, as Professor Teggart knows, good old-fashioned narrative historians, who were also artists and philosophers, have done their bit towards making men agree upon the ends which they should seek.

Perhaps, then, the historians and sociologists who fondly believe that they are scientists, or would like to become such, are on the wrong track; to gain the ends they have in view—the amelioration and control of society—perhaps they ought to turn their backs upon "science" for a while, and cultivate the humanities. A good many people are beginning to hold this view and to ask, in the words of a recent English writer (J. B. Black, *The Art of History*, London, 1926), "is it permissible to believe that when the humanist has come into his own once more we shall see the subject [of history], freed from excessive subserviency to 'science,' rise again to the commanding position it held in the days of Voltaire and Gibbon—the indispensable passport of every educated person, and a social force of the first magnitude?" Such, at any rate, is the belief of the present reviewer.

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Celse; ou le conflit de la civilisation antique et du Christianisme primitif. LOUIS ROUGIER. Paris: Édition du Siècle. 1926. Pp. 442.

This is the first volume of a series entitled "Les Maitres de la Pensée Antichrétienne," and is written by the general editor. The series will appeal, on the strength of its title, to socialists of the more aggressive type, but they will be disappointed. M. Rougier regards the modern popular movement as nothing but Christianity pushed to the absurd limit. His purpose is to assert the rational, aristocratic view of life, of which the Greek thinkers were the typical exponents, over against the fanciful, sentimental view which he attributes to Hebrew and above all to Christian influence. His series naturally begins with Celsus, the first writer to attack the new religion with reasoned argument. He believes that in the work of Celsus, more clearly than anywhere else, the fundamental antith-

esis of the Greek to the Christian view is stated. This cultivated and highly intelligent Pagan, writing at the time when the ancient civilization was at its zenith, perceived the insidious danger of the new movement, and exposed its fallacies, with ample knowledge of its scriptures and traditions. He denounced it as breaking up the social order, as substituting blind faith for reason, as encouraging a false and morbid morality which exalted the weak and erring man above the virtuous. M. Rougier reviews the arguments of Celsus in the clear and interesting style which we expect in the best French writing, and with a scholarship which is none the less real because it is not obtrusive. He keeps his "anti-Christian" bias well in the background, and gives us a book of historical and philosophical value. Celsus has usually been left to Christian apologists, who were mainly intent on demonstrating the futility of his arguments. Even for the purposes of church history it is useful to have a book which enters with thorough sympathy into Celsus' point of view. The book has certainly to be read with caution. M. Rougier has little understanding of the aim and character of early Christianity. He idealizes the ancient world, and often seems to confound the decadent culture of the Empire with that of Plato's Republic. In his anxiety to make Celsus the spokesman of pure rationalism he ignores his belief in magic and demons, and does scant justice to the genuine religious feeling which underlies his scepticism. When all is said, Celsus did not attack religion, but only the Christian conception of religion as opposed to the Greek. To treat him as a twentieth-century rationalist of the Parisian school is to overlook precisely the most vital fact in his polemic. Perhaps the most valuable part of M. Rougier's work is his reconstruction of the "True Discourse" from the scattered quotations of Origen. The task has been attempted before, but never so skilfully. By thus allowing Celsus to speak for himself M. Rougier enables the reader to check many of the conclusions which are too plausibly presented in the body of the book.

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JOURNALS AND NEW BOOKS

Scientia. Vol. XL, N. CLXXV–II. La meccanica di Leonardo da Vinci: *R. Marcolongo.* Chemistry in Islam: *E. J. Holmyard.* Probleme der pathologischen Pflanzenanotomie: *E. Küster.* Ce que l'on appelle la "ratification" des conventions internationales du travail: *C. A. Reuterskiöld.*

Bouglé, C.: The Evolution of Values. Studies in Sociology with Special Applications to Teaching. Translated by Helen Stalker Sellars. With an introduction by R. W. Sellars. New York: Henry Holt & Co. 1926. xxxvii + 277 pp. $2.00.

Lang, Wolfram: Das Traumbuch des Synesius von Kyrene. Uebersetzung und Analyse der philosophischen Grundlagen. (Heidelberger Abhandlungen zur Philosophie und ihrer Geschicte, No. 10.) Tübingen: J. C. B. Mohr (Paul Siebeck). 1926. 91 pp. 3.60 M.

Mumford, Lewis: The Golden Day. A Study in American Experience and Culture. New York: Boni & Liveright. 1926. 283 pp. $2.50.

Riley, Woodbridge: From Myth to Reason. The Story of the March of Mind in the Interpretation of Nature. New York: D. Appleton Co. 1926. xii + 327 pp. $2.50.

Taeusch, Carl F.: Professional and Business Ethics. New York: Henry Holt & Co. 1926. xiii + 370 pp. $3.00.

Sellars, Roy Wood: The Principles and Problems of Philosophy. New York: Macmillan Co. 1926. xiv + 517 pp.

Wahl, Jean: Étude sur le Parménide de Platon. Paris: F. Rieder et Cie. 1926. 276 pp. 20 frs.

NOTES AND NEWS

A series of lectures is being given at Clark University, Worcester, Mass., on the subject "The Case for and against Psychical Research": November 29, Professor Joseph Jastrow, University of Wisconsin; November 30, Dr. L. R. G. Crandon, of Boston, Mass.; December 3, Dr. Walter F. Prince, Boston Society of Psychic Research; December 4, Professor F. C. S. Schillar, Oxford University; December 7, Dr. Gardner Murphy, Columbia University; December 8, Mr. Frederick Bligh Bond, British Society for Psychical Research; December 9, Mrs. Margaret Deland, American novelist; December 11, Professor Hans Driesch, President, British Society for Psychical Research. Manuscripts by Sir Arthur Conan Doyle of England, Professor William McDougall of Harvard University, Professor John E. Coover of Stanford University, Mrs. Mary Austin, American novelist, and others, will be read.